The cell death process of the anticancer agent polysaccharide-peptide (PSP) in human promyelocytic leukemic HL-60 cells.

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The polysaccharide peptide (PSP) isolated from the mycelia of Chinese Medicinal fungus Coriolus versicolor has proven benefits in clinical trials in China but the mechanism of action has not been elucidated. In this study, HL-60 cell line was used to investigate the anti-proliferation and cell death process of PSP. The cytotoxicity of PSP on normal human T-lymphocytes was also evaluated. We show that PSP induced apoptosis of human promyelocytic leukemia HL-60 cells but not of normal human T-lymphocytes. The apoptotic machinery induced by PSP was associated with a decrease in Bcl-2/Bax ratio, drop in mitochondrial transmembrane potential, cytochrome c release, and activation of caspase-3, -8 and -9. Activation of the cellular apoptotic program is a current strategy for the treatment of human cancer, and the selectivity of PSP to induce apoptosis in cancerous and not on normal cells supports its development as a novel anticancer agent.